7199

Medium-Mu Triode—Sharp-Cutoff Pentode

9-PIN MINIATURE TYPE

For High-Fidelity Audio-Amplifier Applications Critical as to Noise and Hum

GENERAL DATA

Electrical:

Heater Characteristics and Ratings:			
Voltage (AC or DC)	6.3 ± 0.6		volts
Current at heater volts = 6.3	0.450		amp
Peak heater-cathode voltage (Each Unit):			
Heater negative with respect to cathode.	200	max.	volts
Heater positive with respect to cathode.	200[a]	max.	volts
Direct Interelectrode Capacitances:[b]			
Triode Unit:			
Grid to plate	2		pf
Grid to cathode and heater.	2.3		pf
Plate to cathode and heater	0.3		pf
Pentode Unit:			
Grid No.1 to plate.	0.06	max.	pf
Grid No.1 to cathode & internal shield & grid No.3, grid No.2, and heater.	5		pf
Plate to cathode & internal shield & grid No.3, grid No.2, and heater.	2		pf

Equivalent-Hum and Noise Voltage (Referenced to Grid): ←

Triode Unit

Average Value (RMS)	10	microvolts
Maximum Value (RMS)	50	microvolts

Measured in "true rms" units under the following conditions: heater volts = 6.3 ac, center-tap of heater transformer connected to ground, plate-supply volts = 250, plate load resistor (megohms) = 0.1, cathode resistor (ohms) unbypassed = 1500, grid resistor (megohms) = 0.05, and amplifier covering frequency range between 25 and 10,000 cps.

Pentode Unit

Average Value (RMS)	15	microvolts
Maximum Value (RMS)	35	microvolts

Measured in "true rms" units under the following conditions: heater volts = 6.3 ac, center-tap of heater transformer connected to ground, plate-supply volts = 250, plate-load resistor (megohms) = 0.22, grid-No.2 supply volts = 250; grid No.2 voltage divider: resistor (megohm) from grid No.2 to B+ = 0.68, resistor (megohm) from grid-No.2 to ground = 0.33; bypass ca-

← Indicates a change.

pacitor (μf) from grid No.2 to cathode = 0.1; cathode resistor (ohms unbypassed) = 680; grid No.1 resistor (megohm) = 0.27; and amplifier covering frequency range between 25 and 10,000 cps.

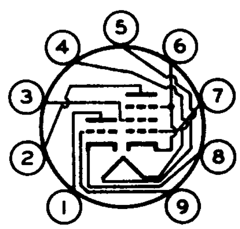
Characteristics, Class A_1 Amplifier:

	Triode Unit	*Pentode Unit*		
Plate-Supply Voltage	215	100	220	volts
Grid-No.2 Supply Voltage. . . .	-	50	130	volts
Grid-No.1 Voltage	-8.5	-	-	volts
Cathode Resistor.	-	1000	62	ohms
Amplification Factor.	17	-	-	
Plate Resistance (Approx.). . .	0.0081	1	0.4	megohm
Transconductance.	2100	1500	7000	μmhos
Plate Current	9	1.1	12.5	ma
Grid-No.2 Current	-	0.35	3.5	ma
Grid-No.1 Voltage (Approx.) for plate μa = 10	-40	-4	-	volts

Mechanical:

Operating Position. . . . . Any
Type of Cathodes. . . . . Coated Unipotential
Maximum Overall Length. . . . . 2-3/16"
Maximum Seated Length . . . . 1-15/16"
Length, Base Seat to Bulb Top (Excluding tip). . 1-9/16" ± 3/32"
Diameter. 0.750" to 0.875"
Dimensional Outline . . . . See *General Section*
Bulb. T6-1/2
Base. . . . . .Small-Button Noval 9-Pin (JEDEC No.E9-1)
Basing Designation for BOTTOM VIEW. 9JT

Pin 1 - Triode Plate
Pin 2 - Pentode Plate
Pin 3 - Pentode Grid No.2
Pin 4 - Heater
Pin 5 - Heater



Pin 6 - Pentode Cathode, Grid No.3, Internal Shield
Pin 7 - Pentode Grid No.1
Pin 8 - Triode Cathode
Pin 9 - Triode Grid

AMPLIFIER — Class A_1

Maximum Ratings, *Design-Maximum Values:*

	Triode Unit	*Pentode Unit*	
PLATE VOLTAGE	330 max.	330 max.	volts
GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE.	-	330 max.	volts
GRID-No.2 VOLTAGE	-	See *Grid-No.2 Input Rating Chart* at front of Receiving Tube Section	
GRID-No.1 (CONTROL-GRID) VOLTAGE:			
Positive-bias value	0 max.	0 max.	volts

	Triode Unit	Pentode Unit	
GRID-No.2 INPUT:			
For grid-No.2 voltages up to 165 volts	-	0.6 max.	watt
For grid-No.2 voltages between 165 and 330 volts	-	See *Grid-No.2 Input Rating Chart* at front of Receiving Tube Section	
PLATE DISSIPATION	2.4 max.	3 max.	watts

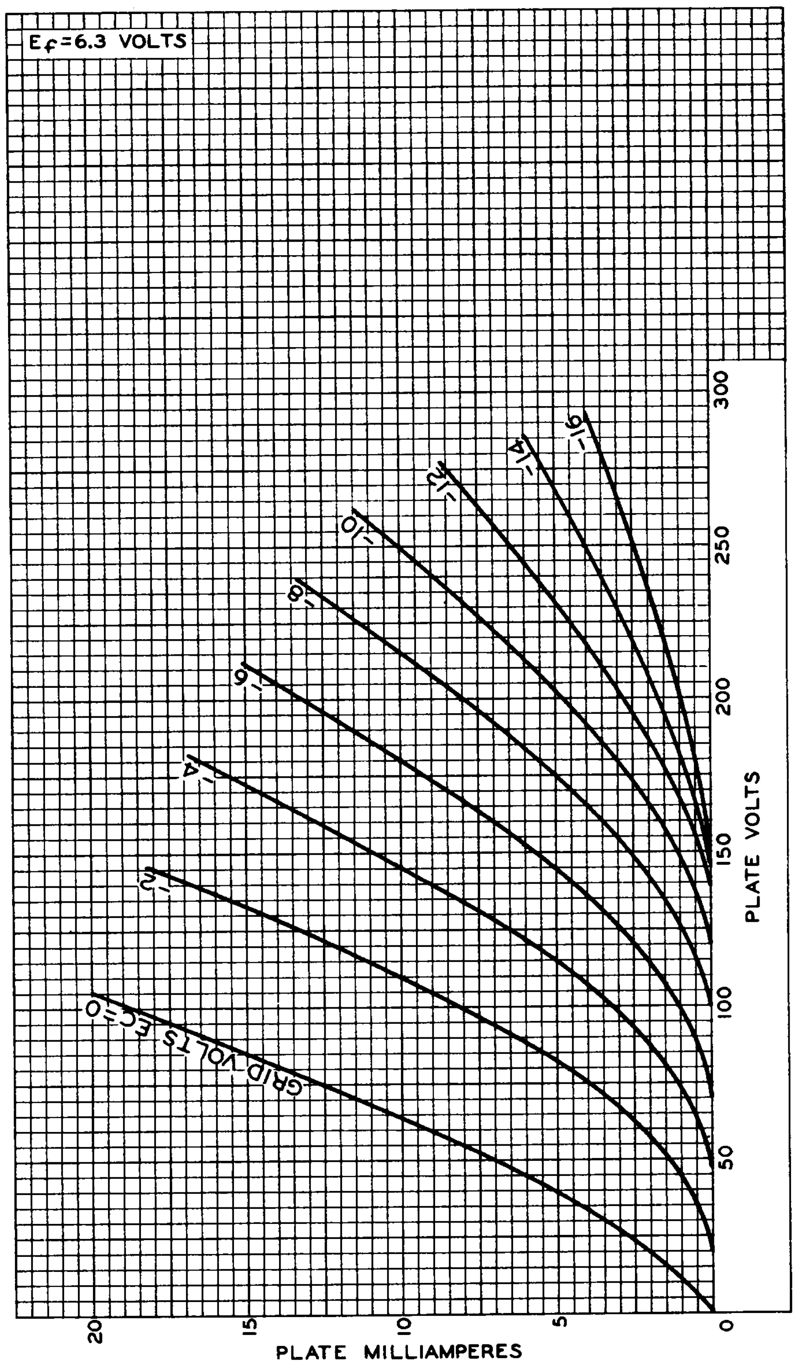
Maximum Circuit Values:

	Triode Unit	Pentode Unit	
Grid-No.1-Circuit Resistance:[c]			
For fixed-bias operation	0.5 max.	0.25 max.	megohm
For cathode-bias operation	1 max.	1 max.	megohm

[a] The dc component must not exceed 100 volts.
[b] Without external shield.
[c] If either unit is operated at maximum rated conditions, grid-No.1-circuit resistances for both units should not exceed the stated values.

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AVERAGE PLATE CHARACTERISTICS
Triode Unit



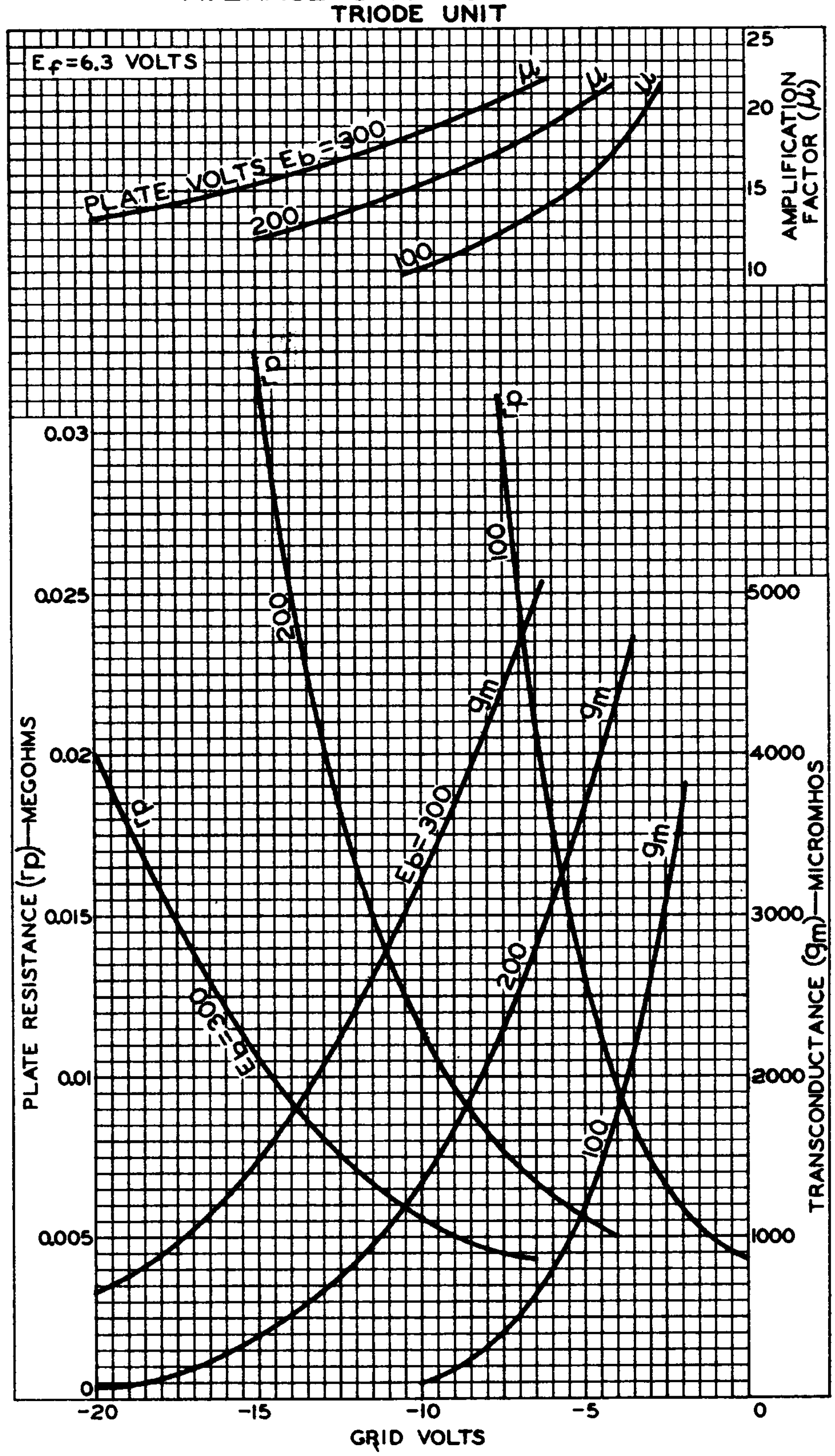
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AVERAGE CHARACTERISTICS
TRIODE UNIT



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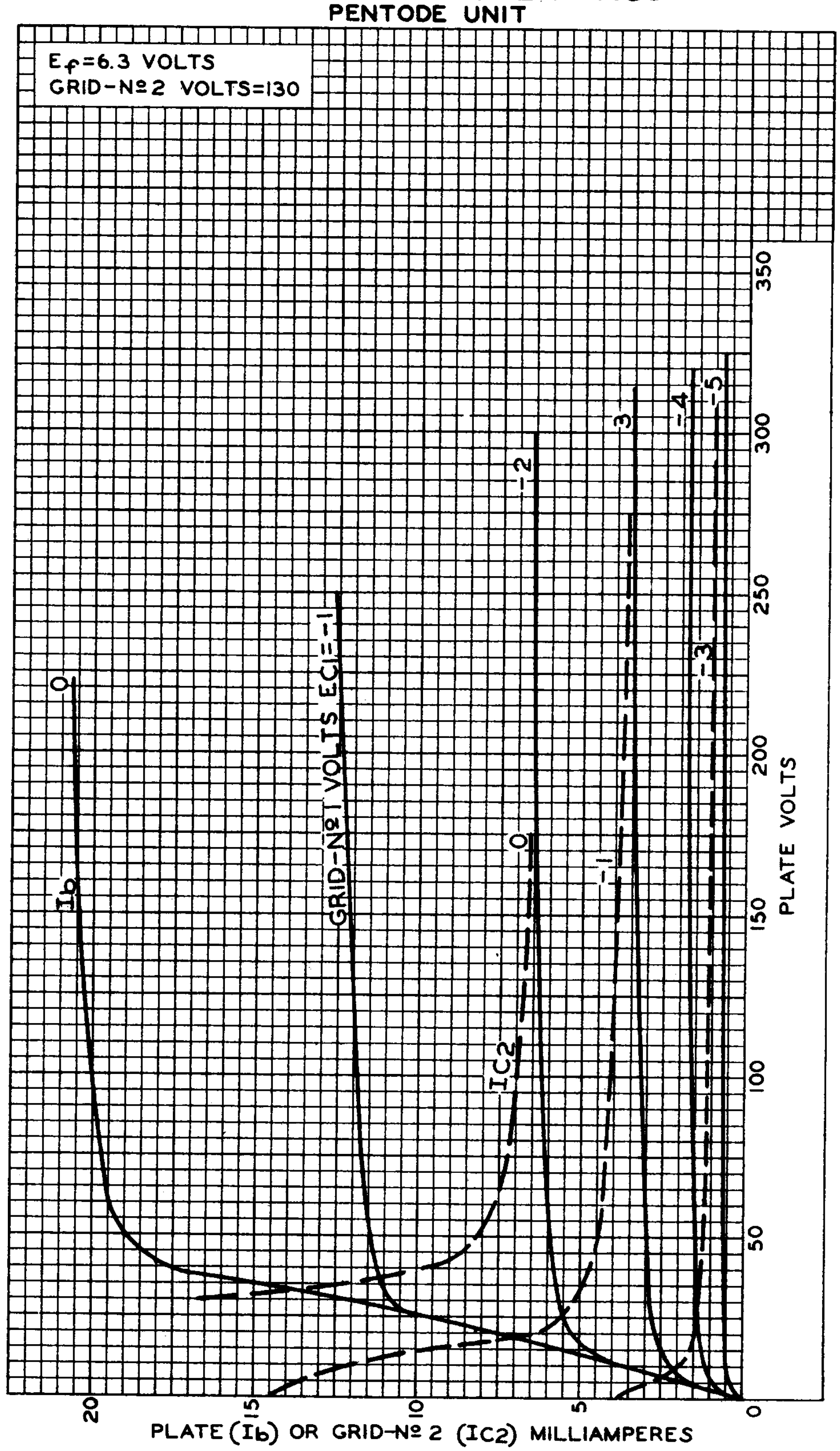
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AVERAGE CHARACTERISTICS

PENTODE UNIT



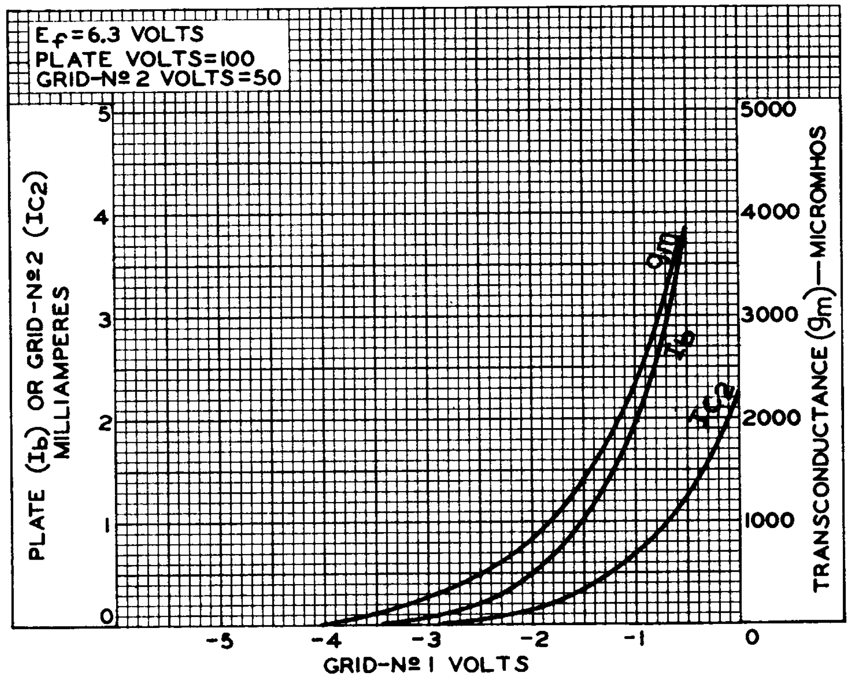
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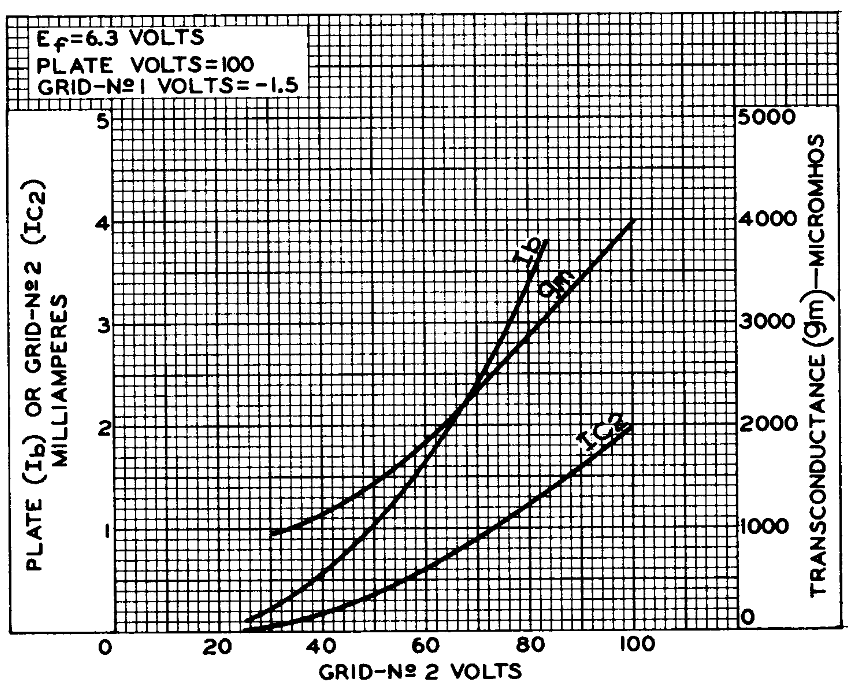
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AVERAGE CHARACTERISTICS

PENTODE UNIT



92CS-9702



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